

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A liquid ejecting apparatus, comprising:

a liquid ejecting head having nozzle openings for ejecting liquid drops;

capping means for sealing a nozzle forming face of said liquid ejecting head to form a closed space;

a tube pump for discharging a fluid in said capping means sealing said nozzle forming face, said tube pump having a flexible tube member having a curved part and a roller member rolling on an inner periphery of said curved part while pressing and deforming said tube member, wherein there exists a leak point where a pressing deformation amount of said curved part by said roller member becomes insufficient;

phase detection means for detecting a phase of a rotational motion of said roller member along said inner periphery of said curved part; and

control means for controlling an operation of said tube pump, said control means having a function for stopping said roller member at a predetermined position based on an information on said phase of said rotational motion of said roller member detected by said phase detection means,

wherein said predetermined position is a position other than said leak point, and
wherein said curved part of said tube member is in a circular ring shape.

2. (canceled).

3. (currently amended): A liquid ejecting apparatus according to Claim 1 Claim 2, wherein said predetermined position is a position of said curved part opposite to said leak point.

4. (original): A liquid ejecting apparatus according to Claim 1, wherein said control means has a function for stopping said roller member at said predetermined position when stopping said tube pump at an end of a suction operation.

5. (canceled).

6. (canceled).

7. (original): A liquid ejecting apparatus according to Claim 1, wherein said phase detection means has a rotator rotating in synchronization with said rotational motion of said roller member and a detector for detecting a phase of a rotational motion of said rotator.

8. (original): A liquid ejecting apparatus according to Claim 7, wherein: said rotator has a notch and said detector detects said phase of said rotational motion of said rotator based on a change in a detection signal at said notch.

9. (original): A liquid ejecting apparatus according to Claim 8, wherein said detector has a light emitter for radiating light toward said rotator and a light receiver for receiving light radiated from said light emitter.

10. (withdrawn): A liquid ejecting apparatus, comprising:
a liquid ejecting head having nozzle openings for ejecting liquid drops;
capping means for sealing a nozzle forming face of said liquid ejecting head to form a closed space;
a tube pump for discharging a fluid in said capping means sealing said nozzle forming face, said tube pump having a flexible tube member having a curved part and a roller member rolling on an inner periphery of said curved part while pressing and deforming said tube member;
phase detection means for detecting a phase of a rotational motion of said roller member along said inner periphery of said curved part; and
control means for controlling said rotational motion of said roller member of said tube pump based on an information on said phase of said rotational motion of said roller member detected by said phase detection means, said control means having a function for moving said roller member to a predetermined position by a low-speed rotation which cannot generate a negative pressure necessary for a liquid suction and then rotating said roller member by a high-speed rotation which can generate said negative pressure necessary for said liquid suction.

11. (withdrawn): A liquid ejecting apparatus according to Claim 10, wherein said control means switches said low-speed rotation to said high-speed rotation without stopping said rotational motion of said roller member.

12. (withdrawn): A liquid ejecting apparatus according to Claim 10, wherein said control means moves said roller member to said predetermined position by said low-speed rotation, then stops said rotational motion of said roller member once, and then starts said high-speed rotation.

13. (withdrawn): A liquid ejecting apparatus according to Claim 10, wherein said curved part of said tube member is in a circular ring shape.

14. (withdrawn): A liquid ejecting apparatus according to Claim 10, wherein said phase detection means has a rotator rotating in synchronization with said rotational motion of said roller member and a detector for detecting a phase of a rotational motion of said rotator.

15. (withdrawn): A liquid ejecting apparatus according to Claim 14, wherein: said rotator has a notch and said detector detects said phase of said rotational motion of said rotator based on a change in a detection signal at said notch.

16. (withdrawn): A liquid ejecting apparatus according to Claim 15, wherein said detector has a light emitter for radiating light toward said rotator and a light receiver for receiving light radiated from said light emitter.

17. (new): A liquid ejecting apparatus, comprising:
a liquid ejecting head having nozzle openings for ejecting liquid drops;
capping means for sealing a nozzle forming face of said liquid ejecting head to form a closed space;

a tube pump for discharging a fluid in said capping means sealing said nozzle forming face, said tube pump having a flexible tube member having a curved part and a roller member rolling on an inner periphery of said curved part while pressing and deforming said tube member, wherein there exists a leak point where a pressing deformation amount of said curved part by said roller member becomes insufficient;

phase detection means for detecting a phase of a rotational motion of said roller member along said inner periphery of said curved part; and

control means for controlling an operation of said tube pump, said control means having a function for moving said roller member from a predetermined start position based on an information on said phase of said rotational motion of said roller member detected by said phase detection means.

18. (new): A liquid ejecting apparatus, comprising:
a liquid ejecting head having nozzle openings for ejecting liquid drops;

a cap that seals a nozzle forming face of the liquid ejecting head to form a closed space;
a tube pump that discharges a fluid in the cap sealing the nozzle forming face,
wherein the tube pump has a flexible tube member having a curved part and a roller
member rolling on an inner periphery of the curved part while pressing and deforming the tube
member,

wherein a leak point exists where a pressing deformation amount of the curved part by
the roller member becomes insufficient;

a phase detector that detects a phase of a rotational motion of the roller member along the
inner periphery of the curved part; and

a controller that controls an operation of the tube pump, wherein the controller stops the
roller member at a predetermined position based on a phase of the rotational motion of the roller
member detected by the phase detector,

wherein the predetermined position is a position other than the leak point, and
wherein the curved part of the tube member has a circular ring shape.

19. (new): A liquid ejecting apparatus, comprising:

a liquid ejecting head having nozzle openings for ejecting liquid drops;

a cap that seals a nozzle forming face of the liquid ejecting head to form a closed space;

a tube pump that discharges a fluid in the cap sealing the nozzle forming face,

wherein the tube pump has a flexible tube member having a curved part and a roller
member rolling on an inner periphery of the curved part while pressing and deforming the tube
member,

wherein a leak point exists where a pressing deformation amount of the curved part by the roller member becomes insufficient;

a phase detector that detects a phase of a rotational motion of the roller member along the inner periphery of the curved part; and

a controller that controlling an operation of the tube pump, wherein the controller moves the roller member from a predetermined start position based on the phase of the rotational motion of the roller member detected by the phase detector.